



MITB- Analytics Internship Report

AXA Insurance, Singapore

Dept.: Data & Innovation

(Jan'18 - Jun'18)

Submitted By:

Priyanka Sharma

MITB- AT, SMU

(priyankas.2017@mitb.smu.edu.sg)

Supervised By:

Mr. Romain Bourgeois

Manager, Data & Innovation, AXA

Dr. Andrew Koh

Practicum Manager, MITB- AT, SMU

Table of Contents

Company Background	4
AXA Singapore, Data & Innovation Dept.	4
Details of Internship Work	4
Project 1: AXA Assistance MARC Claims Data Analysis (Jan'2018)	4
Problem Statement	4
Project Objectives	4
Expected Benefits	5
Process Flow	5
Tasks Performed	5
Level of Responsibility Given	5
Processes Involved	5
Technology Used	6
Status Update	6
Project 2: Credit Control Automation (Feb'2018 – Jun' 2018)	6
Problem Statement	6
Project Objectives	6
Expected Benefits	6
Process Flow	7
Tasks Performed	7
Level of Responsibility Given	8
Processes Involved	8
Technology Used	8
Status Update	8
Project 3: AXA Internship Challenge: Omni Channel Distribution (Jun' 2018)	8
Problem Statement	8
Project Objectives	9
Expected Benefits	9
Tasks Performed	9
Level of Responsibility Given	9
Processes Involved	10
Technology Used	10
Status Update	10

Application of MITB Coursework	10
Knowledge from MITB Coursework Applied & Correlation With Classroom Knowledge.....	10
Expectations Vs. Reality	11
Other Skills & Knowledge Gained	11
Reflections	11
Strengths.....	11
Weaknesses	11
Challenges Encountered	11
Influence on Future Career Plans.....	11
Recommendations and Suggestions.....	11
Contribution to the Company	11
Suggestions/Recommendations	Error! Bookmark not defined.

Company Background

AXA Singapore, Data & Innovation Dept.

AXA is one of the world's leading insurance companies, headquartered in Paris. With its presence in over 59 countries, AXA provides innovative insurance solutions for both personal and business needs to customers all over the world.

The Data & Innovation department at AXA Singapore aims to leverage the company data to offer innovative insurance and improve user experience using:

Advanced Analytics	Data Business	Open Innovation
<ul style="list-style-type: none">•Leveraging data to support business in taking data-driven decision	<ul style="list-style-type: none">•Implementing new IoT business models linked to usage based Insurance	<ul style="list-style-type: none">•Look out for external innovations and drive PoC with start-ups

Details of Internship Work

Following are the key projects that I've worked on during my internship:

Project 1: AXA Assistance MARC Claims Data Analysis (Jan'2018)

Problem Statement

Maintaining Data Quality is important for any organization in order to apply analytics to identify potential business opportunity, make informed decisions & increase customer satisfaction.

The insurance claims data that AXA currently receives from the existing TPA source systems is not very clean in terms of accuracy, completeness, and consistency. This is because the TPA sends data to AXA not as a part of any business requirement, but more as a courtesy to help AXA maintain some information regarding the insurance claims. Since this data is shared post claim booking, minimal information sent in to the company in the form of bulk bookings. Thus, the data which AXA currently receives is of poor quality & cannot be used to perform further analytics on by the data & innovation team.

Project Objectives

Going forward, the existing TPA of the organization would be taken over by AXA Assistance & hence, it is required to set up a formal process (business contract) to ensure that we receive all the details required to successfully book a claim in the system and the information that we receive is clean and complete in order to use this data efficiently, hence we need to identify what information is missing in the incoming data & how we can improve the data quality that we receive to be able to use it for further analysis.

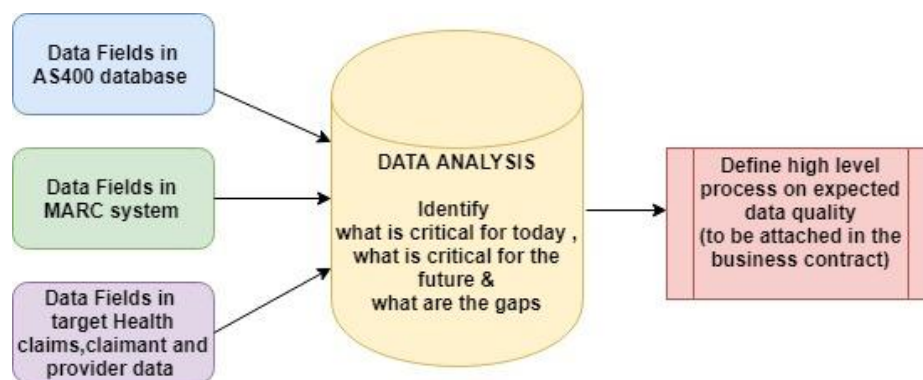
The main objective of this project is to improve Health Insurance Data Quality based on the gaps identified through data assessment & integrate the AXA Assistance MARC claims data with the existing system.

Expected Benefits

Following are the benefits that would be achieved from this project:

- Receive accurate & more consistent data from the new TPA – relevant terms & conditions would be included in the contract to enforce compliance to data quality
- Will allow us to leverage on Analytics to understand business opportunities by examining claims data.
- Cuts down decision-making time by other departments as they would be able to use the insights provided by the data & innovation team.
- Can reduce errors by examining a range of data needed to book claims
- Fraud analytics helps insurers cut costs, boost margins, increases customer satisfaction and lower litigation costs.

Process Flow



Tasks Performed

- Identified all fields used today in the system from the AS400 database
- Identified all fields used in MARC system
- Identified target Health claims, claimant and provider fields to be used in future
- Map the above fields to identify what is critical for today, what is critical for the future & what are the gaps from MARC
- Define high level process (to be potentially attached in the contract) to set up and monitor Data quality targets for AA Marc data

Level of Responsibility Given

For this Project, I worked along-side my mentor to analyze the existing system functionality & identify key information stored & needed to book claims successfully.

I also coordinated with the Business Analyst & Claims team to seek clarifications on the information captured & missing data fields.

Processes Involved

Business Meetings, Requirement Gathering, Data Analysis, Impact Analysis

Technology Used

AS400, SAS Database, Microsoft Excel

Status Update

The project is currently in the negotiations phase with AXA Assistance to set up a formal business contract on the quality of data which we would receive.

Project 2: Credit Control Automation (Feb'2018 – Jun' 2018)

Problem Statement

For a long time, the Finance Ops department in AXA generated reports to monitor the Outstanding Premiums & Unallocated cash manually, using the AS400 queries. This process was tedious as well as time- consuming & it was difficult for the Finance team to keep track of the Outstanding Premiums & Unallocated Cash.

Project Objectives

Following are the main objectives of this automation:

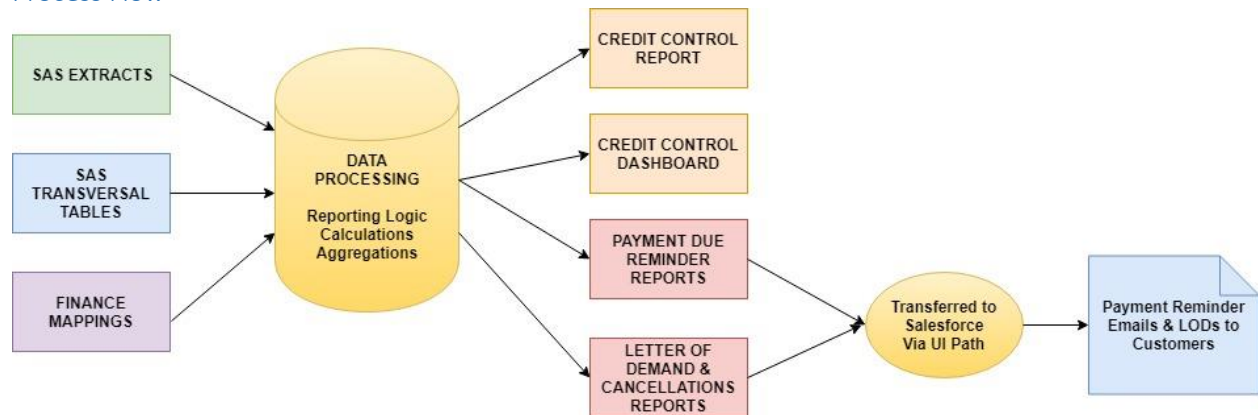
- A readily available dashboard on outstanding premiums and unallocated cash position for monitoring and reporting purposes – refreshed on daily basis
- Standardized report used for bi-weekly meetings with internal stakeholders (distribution teams and underwriters) and external stakeholders (intermediaries)
- Clear ownership and accountability of account handler for each account
- Identify policyholders/intermediaries with overdue payments to send reminder emails & LOD
- Identify policies due for cancellation

Expected Benefits

The following benefits are identified in terms of Time, Cost & Performance

- 55 hours of efficiency savings related to Automatic update of the reports. The time saved from the manual preparation can be channeled to other activities
- Reduces unallocated cash levels & outstanding premium significantly
- Allows ease of monitoring and control over the credit control performance

Process Flow



Tasks Performed

Implementation of Credit Control Report

The report was developed in 3 phases, to include the required information as shown below:

Phase 1

Net Outstanding Premiums Positions

- Overview - Snapshot of total outstanding premiums and Unallocated Cash - for all channels, all LOBs - with aging
- Outstanding premiums positions on selection of channels and LOBs with aging, LY production and CY YTD production information
- Detailed breakdown by Policy and Transaction level for Outstanding premiums with selection of channels and LOBs, Aging, Outstanding premiums approaching PPF

Phase 2

Unallocated Cash Positions (Ucash)

- Ucash Position with selection of channels, LOBs with Aging
- Top 20 : Unallocated Cash Positions with selection of channels and LOBs, Aging, LY production and CY YTD production information
- Detailed breakdown by Policy and Transaction level for Ucash with selection of channels and LOBs and Aging

Phase 3

Key Performance Indicators

- Outstanding premiums (net of ucash) - by Account handler
- Ucash - by Account handler
- Outstanding premiums (net of ucash) - Number of transactions as per action required for Retail/Commercial

Implementation of Credit Control Dashboard

The dashboard is used to present the weekly snapshot of the unallocated cash & outstanding premiums as shown below

Evolution - Credit Control Dashboard

	Sheet	Description	Updated
Unallocated Cash	11	Snapshot of total Unallocated Cash - for all channels with aging	Weekly
	12	Snapshot of total Unallocated Cash - for EB with aging	Weekly
Outstanding Premiums	21	Snapshot of total Outstanding Premiums- for all channels with aging	Weekly
	22	Snapshot of total Outstanding Premiums- for EB with aging	Weekly

Implementation of Reminders, LOD & Cancellations Listings to Salesforce

In order to keep track of the Premiums to be recovered from different Policyholders & Intermediaries, I worked on generating the below datasets which are shared with the Salesforce team. The Salesforce team then uses this information to follow-up with the customers on payments and cancellations.

Daily	Weekly	Bi-Monthly
<ul style="list-style-type: none"> •Policyholders with payment due – 1st Reminders 	<ul style="list-style-type: none"> •Intermediaries with payment due – 1st & 2nd Reminders 	<ul style="list-style-type: none"> •Policyholders that need to be issued with Letter of Demand •Policies to be Cancelled

Level of Responsibility Given

Complete ownership of the project for end-to-end development from scratch & production deployment, involving direct interaction with the higher management, including the Director of Finance Ops.

Processes Involved

Requirement Gathering and Analysis, Design, Implementation/Coding, Testing, Production Deployment, Maintenance/Support, Knowledge Transfer

Technology Used

Python, SAS Programming, MS Excel Pivot Tables, MS Excel VBA

Status Update

All the reports implemented as a part of this project are Live on Production & in use.

Project 3: AXA Internship Challenge: Omni Channel Distribution (Jun' 2018)

Problem Statement

AXA's products now are distributed through different channels from online to offline including agents, bank partners, SingPost, website, telemarketers and roadshows. It is always a challenge to increase the number of customer touch points without increasing the costs much. It is thus important for us to come up with innovative & cost effective solutions for reaching out more & more customers

Project Objectives

The challenge is to suggest how AXA can increase the chances of reaching out to 2 groups of target customers & understand their purchasing behavior: Millennial & Between 30-45 with Family. The study needs to address the following:

- How to penetrate the social circle of the target customers
- Identify their understanding regarding the differentiation of Life & GI Insurance products
- Identify their usual touch points when purchasing Insurance products

Expected Benefits

Through this challenge, the management aims to explore the characteristics, demographic profiles, pain points/needs & purchasing behavior of the different customer segments. Using this information the product development & marketing teams will work on improving the types of insurance offered to the target customers & thus improve the business.

Tasks Performed

- Researched on the given topic to identify current roadblocks through:
 - Online surveys (60 respondents, 30 - 45 years old),
 - Personal interviews (Families with young kids & AXA Staffs)
 - Studying Competitor reports (AIA Research Report)
 - Journals & Websites (LIA, Annex Cloud)
 - News Articles (Straits Times, AsiaOne)
- Came up with the following business strategies to cross sell & up sell insurance products to the targeted customers:
 - New design for the company website for Optimization of Leads
 - Marketing strategies to increase brand awareness among customers:
 - Discounted Lifestyle Products
 - Complimentary 1 Year Life plan to Millennials
 - Digital Partnering Strategy to acquire valuable customer data
 - Upgrade to the AXA Mobile app to include digital wallet sharing services
 - Couple Plan Promotions through Gynae Clinics/Childcare Centers
 - Collaborations with Fitbit for insurance recommendations based on health data
- Performed Financial Budgeting of the above proposed strategies
- Calculated & demonstrated expected financial benefits to the organization
- Estimated expected timeline for implementing the suggested strategies

Level of Responsibility Given

Worked on the challenge in a team of 5 to conduct research, design the business strategies & propose financial budget.

Processes Involved

Requirement Gathering, Research Analysis, Business/Design Strategies, Financial Budgeting

Technology Used

MS Office, Google Forms to conduct the Surveys, Website Research

Status Update

1st Runner Up in the Final Presentation to the Executive Committee of AXA.

The business strategies we came up with were well accepted and some of these would be implemented in real business to achieve the targets.

Application of MITB Coursework

Knowledge from MITB Coursework Applied & Correlation With Classroom Knowledge

The internship experience has been valuable & I've learnt a lot in the 6 months. The MITB courses were helpful and enabled me to perform well.

Below are some of the applications of the MITB Coursework:

- Applying the concepts of IT Project & Vendor Management course work & my past work experience, I've could extract relevant requirements from the users
- As learned in the Analytics framework in Business Context as well as the IT Project & Vendor Management courses, I've could strike a balance between the managing the incoming requirements and ensuring that the deliverables meet the expectations of the users while not compromising on the proper testing that needs to be done before deploying the same on Production. Sometimes it is important to push back on the new requirements to meet the timeline of the existing deliverables
- The concepts learnt in Data Analytics lab has helped me with the MARC Claims Data Analysis project. Maintaining Data Quality is important for any organization to apply analytics to identify potential business opportunity, make informed decisions & increase customer satisfaction.
- My past work experience as a database developer & the SQL concepts learned in the Data Management course has helped me pick up SAS Programming with ease, needed to automate the Credit Control Report
- Spreadsheet Modelling Course gave me the confidence needed to work with MS Excel VBA & Pivots, needed to design the dashboards and reports
- The Credit Control automation gave me a complete ownership of the project from start to end & using the concepts learned in IT Project Management, Analytics framework, Data Management, Spreadsheet Modelling & Data Analytics Lab, I've been able to successfully deliver the project.
- Used Customer Analytics techniques to perform customer segmentation based on the given business case and devised strategies to reach out to them.
- The presentation skills developed throughout the course helped in presenting our business proposal well to the Executive Committee and thus helped in securing 1st Runner Up position in the AXA Internship Challenge competition

Expectations Vs. Reality

Although the internship opportunity has been a great learning experience for me, I was expecting to work more on actual 'analytics' related use-cases where I could learn more on how different techniques are actually used in real world, however I did not get a chance to work on any such use-case.

Other Skills & Knowledge Gained

Got hands-on knowledge of Python (Pandas) and a glimpse of big-data problems faced by industry.

Reflections

Strengths

- A past work experience as an oracle database developer enabled me to apply my knowledge in SQL to the project and helped pick up SAS Programming with ease. Other team members would often come to me to resolve their SQL related queries.
- Using my data processing skills, I could develop the complex logic as per user expectations
- Having worked with multiple clients in the past, I could interact well with the business

Weaknesses

Insurance was a new domain for me, so I had some difficulty in picking up the business language initially.

Challenges Encountered

The automation of Credit Control Reports was an internal project being developed for the Finance Ops team at AXA, due to which the business requirements kept changing with almost every meeting. It was challenging to accommodate frequent design changes in the code due to the complexity of the backend logic. Since the business team was internal, it was difficult for my mentor to push back on the requirements as there was no clearly define cut-off.

Influence on Future Career Plans

Having a past work experience of 9 years in data processing and analysis primarily on Oracle PL/SQL & SQL, the internship added new skills to my profile which are definitely an advantage. I am confident on SAS Programming, VBA & Python and this would help increase the kind of roles I can look for in future. Also, Insurance was a new business domain for me & I can confidently look forward to working in this field now, so far, I had only worked in the Banking and Financial Services domain in my past organizations.

Recommendations and Suggestions

Contribution to the Company

I believe that I've made significant contributions to the company through all the 3 projects that I've worked on during the 6-month internship tenure at AXA.

With the MARC Claims data analysis project, I've helped the data & innovation team to identify the important data needed in the system which would allow the business to leverage on analytics to come up with relevant business opportunities. This analysis will help maintain data quality and reduce the

decision-making time by other departments as they would be able to use the insights provided by the data & innovation team.

The automation of Credit Control Reports was a very important project and by delivering the same, I was able to free the finance departments from the tedious & time-consuming manual process of getting the positions of outstanding premiums & unallocated cash. With accurate monitoring of the credit, the finance department would be able to significantly reduce the levels of outstanding premiums & unallocated cash. The Reminders as well as the LOD data which I generated for the Salesforce team will help them chase the customers for overdue payments & thus bring in financial benefits for the organization.

Working on the real business case of 'Omni Channel Distribution' for the AXA Internship Challenge, we came up with simple yet effective business strategies to target the given customer segment. Securing 1st Runner Up position in the challenge and receiving appreciation from the executive committee is an indication of how well the higher management has accepted our proposal. We were told that some of our strategies would be implemented in the coming time which would definitely be beneficial for the organization.